

State of Utah
Department of Natural Resources
Division of Wildlife Resources
Aviculture Facility Guidelines

Care and storage of eggs:

Egg storage should be between 50 and 60°F. Ideal storage temperature should be a constant 55°F. Humidity in the storage environment should be at about 70 to 75%. The eggs must also be kept clean.

Incubator environment requirements:

In forced-air incubators, the ideal temperature is between 99 and 100° F with a mean setting of 99.5° F.

In still-air incubators, the temperature should be 102° F at the top of the egg when horizontal or 1/4" from the top when vertical. Care should be taken that the temperature does not exceed 103°F.

Humidity requirements in either type of incubator will vary by species. Keep in mind that improper humidity levels will adversely affect the hatch.

Ventilation is necessary to remove excess amounts of carbon dioxide. Carbon dioxide levels should be at least 0.4% and must not exceed 1.0%.

Clean housing requirements:

Clean facilities are important in the prevention of death and disease. All equipment should be thoroughly cleaned and disinfected before use and kept clean during use. Litter materials should also be kept clean and dry. If litter should become wet or caked, it should be removed immediately. This will aid in the prevention of disease, illness and death.

General food requirements:

Food requirements will vary depending on which species of game bird is being reared. Food requirements will also vary based on what the game bird will be used for (egg production, finishing, flight, etc.). Nutrient content in the food is also a consideration. A day-old chick has different nutrient requirements than an adult bird. Food should be made available to birds in clean containers, preferably located off of the floor to prevent contamination.

Food particle size should also be taken into consideration. The smaller the bird, the smaller the food particles should be. This is the same for grit provided to the birds.

When feeding game bird chicks, feeder space should be taken into account. The following table lists feeder space requirements for chicks that are 1-2 weeks and 2-6 weeks.

Feeder space (linear) required per chick:

Game Bird	1-2 weeks	2-6 weeks
Quail	1/2 inch	1 inch
Chukar	3/4 inch	1.5 inches
Pheasant	1 inch	2 inches
Grouse	1 inch	2.5 inches

General water requirements:

Water quality is important to the success of game bird production. Clean, fresh water should be made available to birds at all times. The amount of water supplied to game birds will vary depending on the type and number of birds. Precautions should be taken to keep areas around watering systems clean and dry.

The breeder should have their water source(s) tested for high levels of minerals that could lower overall productivity. Also, the ideal pH level of the water given to game birds is between 6.4 and 8.5.

Brooder box or house requirements:

There are several types of brooder houses available to aviculture installations. The deciding factor in building a brooder house will be the species and numbers of birds to be reared. Things to take into consideration for each brooder house are size, lighting, heat and ventilation sources/requirements, ease of access to various parts of the brooder, ability to keep predators and vermin out, safeguards to keep the birds from escaping.

The type of litter used will be based on the species and type of flooring provided in the brooder house. Take into consideration that young birds or chicks may ingest certain types of litter materials resulting in crop impaction.

Floor space requirements:

Another item that the game bird breeder should keep in mind is floor space requirements per bird in any operation. Given enough space, stress and cannibalism rates will decrease as will mortality rates. The following tables are recommended floor space, water and food provisions for birds in an enclosure during grow-out and after grow-out. Grow-out is when the chicks are moved from the brooder house to outside pens.

Space requirements during grow-out:

Species	Floor Space feet	Feeder Space inches/bird (linear)	Waterer Space inches/bird (linear)
Quail	3 to 4	1	1/2
Grouse	6 to 8	4	1
Partridge	3 to 5	2	1
Pheasant	10 to 12	4	1

¹For pens without vegetation, double the recommended space per bird.

Recommended game bird space (after grow-out) in square feet:

Species	Cage	Floor and wire floor	Flight pen
Quail	.5 to .7	2 to 3	3 to 4
Partridge	.5 to 1	3 to 4	4 to 6
Pheasant	1 to 1.5	6 to 8	25 to 30

Construction materials:

There are not really any recommendations for construction materials. Keep in mind that durability and ease of cleanup should be at the top of the list when choosing these materials. Also, the materials used in the construction of the brooder house will be based on the type of house being constructed and support requirements.

Ventilation:

Rates will vary depending upon the type of system used to rear the birds. Brooder houses must have either a positive (air-forced into room) or negative (air-exhausted from room) ventilation system. This system must be capable of moving about 1 cfm of fresh air for each pound of live bird in each room.

The following is a table of recommended ventilation requirements:

Bird	cfm*
Quail	2
Partridge	3

Pheasant 5

*Ventilation rates can also be affected by air temperature

Flight pens:

Flight pens, much like the brooder houses, will vary in size depending on the species and number of birds. Things to take into consideration when building a flight pen are location, soil type, vegetation productivity, ground slope (for good drainage) and the ability to provide quality water.

Another important factor in building a flight pen, as well as other enclosures, is the ability to keep predators out.

Cover structure, either artificial or natural, should also be provided to game birds in flight pens. Adequate cover provides birds with an escape from possible cannibalism and pecking. Cover can also reduce stress levels of game birds in a flight pen. Vegetation in flight pens can also reduce cannibalism by providing the birds something to peck at instead of each other. Bales of green alfalfa can be used if there is no, or very little, natural vegetation in the flight pen.

Predator control:

Predation can be a serious problem for game bird breeders. The best way to prevent loss due to predation is to keep predators out. A concrete foundation or hardware cloth buried at least 10 inches deep and bent outward at least 18 inches will prevent most predators from entering a pen. By placing a “visual barrier” at the base of the pen, you can prevent loss due to panic or injury. A visual barrier is simply a piece of fiberglass, wood or metal placed along the bottom edges of the pen that prevent the birds from seeing outside.

Disease control:

Disease is another problem that can have adverse affects on aviculture installations as well as surrounding bird populations. There are several steps that can be taken to help prevent the spread of disease in an aviculture installation. These include regular health inspections by a qualified veterinarian, strict sanitation, etc.. A few simple steps in prevention can save the game bird breeder a lot of time and money. If a bird or group of birds is suspected of disease or illness, immediately remove it from the presence of other birds and place it in a quarantine facility. Quarantine facilities should be located as far away from all other birds as possible.